Rocky Flats Environmental Technology Site

PRE-DEMOLITION SURVEY REPORT (PDSR)

Building 771 Locker Room Area (AC)

REVISION 1

July 12, 2004

CLASSIFICATION REVIEW NOT REQUIRED PER EXEMPTION NUMBER CEX-005-02

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PRE-DEMOLITION SURVEY REPORT (PDSR)

Building 771 Locker Room Area (AC)

REVISION 1

July 12, 2004

Prepared by: _____ Date: 7-13-04
Tommy Fontaine, Radiological Engineer

Reviewed by: _____ Date: 7/13/04
for Sarah Roberts, Radiological Safety Manager

Approved by: _____ Date: 7/13/04
Chris Gilbreath, B771 Project Manager

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ATTACHMENTS

ABBREVIATIONS/ACRONYMS

ACM	Asbestos Containing Material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
$DCGL_{EMC}$	Derived Concentration Guideline Level – elevated measurement comparison
$DCGL_W$	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
HEUN	Highly Enriched Uranyl Nitrate
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LLW	Low-level waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
PDSR	Pre-demolition survey report
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSA	Removable Surface Activity
RSOP	RFCA Standard Operating Protocol
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TSA	Total surface activity

VOCs	Volatile organic compounds
WSRIC	Waste Stream and Residue Identification and Characterization

EXECUTIVE SUMMARY

A Pre-Demolition Survey was performed to enable compliant disposition and waste management of the Building 771 Locker Room area (referred to herein as Area AC). Because this area will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Building surfaces characterized as part of this PDS include the interior surfaces of Area AC.

The PDS encompassed both chemical and radiological characterization. The characterization was built upon physical, chemical and radiological hazards identified in the facility-specific *B771 and B774 Hazards Characterization Report for the 771 Closure Project.*

Based upon the results of this PDSR, Area AC meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan. This structure can be demolished and the waste managed as PCB Bulk Product waste or as sanitary waste, and the concrete can be used for backfill on-site per the RFCA RSOP for Recycling Concrete. To ensure that the facility remains free of contamination and PDS data remain valid, Level 2 isolation controls are established.

1 INTRODUCTION

A Pre-Demolition Survey was performed to enable compliant disposition and waste management of the Building 771 Locker Room area (referred to herein as Area AC). Because this Type 3 building will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). The results of this survey shall demonstrate that Area AC meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan. Building surfaces characterized as part of this PDS include interiors surfaces of Area AC.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed. Among these is Area AC. This facility no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before this Type 3 facility can be demolished, the Data Quality Objectives (DQOs) for a Pre-Demolition Survey (PDS) must be satisfied; this document presents the PDS results for Area AC. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The PDS is built upon physical, chemical and radiological hazards identified in the facility-specific *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, dated June 12, 2001, Revision 0.

1.1 PURPOSE

The purpose of this report is to communicate and document the results of Area AC. A PDS is performed prior to building demolition to define the pre-demolition radiological and chemical conditions of a facility. The pre-demolition conditions are compared with the release limits for radiological and non-radiological contaminants. PDS results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

1.2 SCOPE

This report presents the pre-demolition radiological and chemical conditions of the Area AC surfaces that will be free-released and disposed of as sanitary waste, recycle metal, or used as backfill per the requirements of the *RFETS, RFCA RSOP for Recycling Concrete*.

1.3 DATA QUALITY OBJECTIVES

The Data Quality Objectives (DQOs) used in designing this PDS meet the minimum requirements specified in Section 2.0 of the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). Refer to section 2.0 of MAN-127-PDSP for these DQOs.

1.3.1 The Problem

The problem involves determining whether or not the survey unit is suitable for unrestricted release in accordance with this plan.

1.3.2 The Decision

The decision is verification that objectives specified in the decommissioning decision document have been met (e.g., certain materials meet unrestricted release criteria for radiological and non-radiological constituents).

1.3.3 Inputs to the Decision

Inputs to the decision include the magnitude and location of data from preceding characterizations, including RLC and In-Process Characterization (IPC), PDS results, decision document action levels, and unrestricted release criteria.

1.3.4 Decision Boundaries

The decision boundaries are the spatial confines of the facility, including rooms and sets of rooms, in two and three dimensions. Interior surfaces are included, including those below grade. Boundaries may be further defined in RFCA decision documents.

1.3.5 Decision Rules

The following are decision rules to be used during PDS:

1.3.5.1 Radionuclides

If all radiological survey and scan measurements (and sample measurements, where sample activity is translated to surface activity as described in Section 7.2.3 of the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP)), are below the surface contamination guidelines specified in the Site PDSP, then the related areas and/or volume are considered not radiologically contaminated. The media sample result is calculated by converting volumetric activity (typically reported in pCi/g) to surface activity (dpm/100 cm^2). The volumetric result (pCi/g) is multiplied by the weight of the sample (grams) and by 2.22 (conversion from pCi to dpm).

If any radiological survey or scan measurement exceeds the surface contamination guidelines provided in the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP), the related survey unit must be evaluated per the statistical tests described in section 7.0, Data Analysis and Quality Assessment, of this plan. If any radiological sample measurement (or disposal unit volume) exceeds 100 nanocuries per gram of transuranic material, the related volume of material is considered transuranic (TRU) waste.

1.3.5.2 Hazardous Waste

If decommissioning waste is mixed with or contains a listed hazardous waste, or if the waste exhibits a characteristic of a hazardous waste, then the waste is considered RCRA-regulated hazardous waste in accordance with 6 CCR 1007-3, Parts 261 and 268.

1.3.5.3 Hazardous Substances

If material contains a listed hazardous substance above a decision document action level (e.g., RFCA) and/or the CERCLA reportable quantity (40 CFR 302.4), the material is subject to CERCLA regulation (i.e., remediation and/or notification requirements).

1.3.5.4 Beryllium

If surface concentrations of beryllium are equal to or greater than 0.2 $\mu g/100\ cm^2$, the material is considered beryllium contaminated per 10 CFR 850.

1.3.5.5 PCBs

If material contains PCBs, in a non-liquid state, from the manufacturing process at concentrations ≥50 ppm, the material is considered PCB Bulk Product Waste and subject to the requirements of 40 CFR 761.

If PCB contamination from a past spill/release is suspected, or if a PCB spill is discovered that has not been cleaned up, the associated material is considered PCB Remediation Waste and subject to the requirements of 40 CFR 761. PCB remediation waste includes: materials disposed of prior to April 18, 1978, that are currently at concentrations ≥50 ppm PCBs, regardless of the concentration of the original spill; materials which are currently at any volume or concentration where the original source was ≥500 ppm PCBs beginning on April 18, 1978, or ≥50 ppm PCBs beginning on July 2, 1979; and materials which are currently at any concentration if the PCBs are spilled or released from a source not authorized for use under 40 CFR 761.

If a waste or item contains PCBs in regulated concentrations, the waste or item is classified as PCB-regulated material and subject to the requirements of 40 CFR 761.

1.3.5.6 Asbestos

If any one sample of a sample set representing a homogeneous medium results in a positive detection (i.e., >1% by volume), then material is considered ACM (40 CFR 763 and 5 CCR 1001-10).

1.3.6 Tolerable Limits on Decision Error

Acceptable false negative *(a)* errors for calculating the number of samples generally range from 1% to 10%. The default value specified by the Site PDSP is 5%, which was assumed for the survey design in this report.

1.3.7 Optimization of Plan Design

Statistically based radiological surveying and sampling will be conducted per the guidance in Appendix B of the RFETS Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). Refer to Section 4.0 of the PDSP for direction of characterization of non-radiological, chemical constituents. For this report, the minimum number of

measurement locations is fifteen per survey unit, as calculated based on the guidance in MAN-127-PDSP. The $DCGL_W$ is 100 dpm/100 cm^2 for TSA and media measurements/samples, and 20 dpm/100 cm^2 for RSA measurements. The LBGR was adjusted to obtain a relative shift of two. The estimated standard deviation for each measurement type was calculated based on an assumed coefficient of variation of 30%.

The scan requirements for specific survey unit classifications are as follows:

Class 1: 100% of accessible surface
Class 2: 10-100% floors/lower walls
10-50% upper walls/ceilings

No Class 3 survey units are included in the scope of this report.

2 HISTORICAL SITE ASSESSMENT

A facility-specific Hazards Characterization Report was conducted to understand the facility history and related hazards. The Building 771 Hazards Characterization was performed in June 2001 (Refer *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, dated June 12, 2001, Revision 0). Based on the characterization results, no radiological contamination was identified in Area AC. The media sample results did not indicate radiological contamination in excess of the unrestricted release limits in or under the paint. However, Area AC is considered a Type 3 facility based on its proximity to Building 771.

The area included in the scope of this PDSR is referred to herein Area AC. This area was part of the original building 771 construction, and included the men's and women's locker rooms, janitor's closet, the portion of Corridor A just north of the Contamination Area airlock, and the northwest section of Corridor H. All non-load-bearing walls were removed from Area C during D&D activities.

Area AC consists of two Class 1 survey units (771034 and 771104), and one Class 2 survey unit (771110) based the contamination potential, per Section 3.0 of the PDSP.

The hazards characterization results and historical review (refer to Attachment G) were used to identify PDS data gaps and needs, and to develop radiological and chemical PDS characterization packages. Characterization documentation is located in the Building 771 Characterization Project files.

3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Area AC was characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the facility surfaces. Measurements were performed to evaluate the contaminants of concern (weapons-grade plutonium isotopes). Based upon a review of the characterization data, historical and process knowledge, in-process survey data, building walk-downs, and the Site Pre-Demolition Survey Plan (MAN-127-PDSP), a Radiological Characterization Plan was developed during the planning phase that

describes the minimum survey requirements (refer to survey packages 771034, 771104, and 771110). A Survey Unit Overview Map is presented in Attachment A. Based on hazard characterization data and historical and process knowledge, transuranic isotopes are the primary contaminants of concern in Buildings 771/774. Therefore, the PDS was performed to the transuranic PDS unrestricted release criteria. Individual radiological survey unit packages are maintained in the Building 771 Characterization Project files.

The Area AC survey unit packages were developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total surface activity (TSA) and removable surface activity (RSA) measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis*. Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control*.

Per the reference procedures, the required number of measurement locations is fifteen (15) per 100 square-meters of floor area for Class 1 survey units, and fifteen (15) per 1000 square-meters of floor area for Class 2 survey units. Scans were required on 100% of the structural surfaces for the Class 1 survey units; and 100% of lower wall and 10% of upper wall/ceiling surfaces for the Class 2 survey unit.

Radiological survey data, statistical analysis results, survey locations, and radiological scan maps are presented in Attachments B, C, and D, *Radiological Data Summary and Survey Maps*.

Area AC Floors – (Survey Unit 771034)

The Area AC floor is a Class 1 survey unit. This area includes the floors of Rooms 120-128 (men's and women's locker rooms, janitor's closet, and the northwest section of Corridor H). This survey unit was originally classified as Class 2, based on process history. However, contamination in excess of the unrestricted release limits was detected during the initial final survey effort. Hydrolazing water that leaked from the process areas of Building 771 is the suspected source. Because of the identification of areas of elevated activity, the classification was changed to Class 1. A total of 123 random TSA and RSA measurements were collected. Surface scans of 840 m^2 (100% of floor surfaces) were performed. All paint was removed from the floors, therefore no media samples were collected for this survey unit.

All scans and surveys in survey unit 771034 were less than the applicable PDS transuranic DCGL values. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 771034 are presented in Attachment B, *Survey Unit 771034 Radiological Data Summary and Survey Map*.

Area AC Walls/Ceiling– (Survey Unit 771110)

The walls and ceilings of Area AC are classified as a Class 2 survey unit. This area includes the walls/ceiling of Rooms 120-128 (men's and women's locker rooms, janitor's closet, and the northwest section of Corridor H). The classification was based on the low potential for contamination based on process history and characterization data. A total of 15 random TSA and RSA measurements and 15 media samples were collected. Surface scans of 229 m^2 of lower walls (100% of lower wall surfaces), 48 m^2 of upper walls (14% of upper walls surfaces), and 164 m^2 of the ceiling (14% of ceiling surfaces) were performed.

All scans, surveys, and media sample results in survey unit 771110 were less than the applicable PDS transuranic DCGL values. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 771110 are presented in Attachment C, *Survey Unit 771110 Radiological Data Summary and Survey Map.*

Area AC Northeast Corner – (Survey Unit 771104)

The northwest corner of Area AC is a Class 1 survey unit. This area includes the section of Corridor A that is located just outside of the former Process Area airlock. This survey unit was originally classified as Class 2, based on process history. However, contamination in excess of the unrestricted release limits was detected during the initial final survey effort. The source of contamination is suspected to be due to personnel, given that this was a high traffic area during building operations and due to the proximity of the area to the former Process Area. Because of the identification of areas of elevated activity, the classification was changed to Class 1. A total of 15 random TSA and RSA measurements and 15 media samples were collected. Surface scans of 180 m^2 (100% of total surface area) were performed.

All scans, surveys, and media sample results in survey unit 771104 were less than the applicable PDS transuranic DCGL values. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps for survey unit 771104 are presented in Attachment D, *Survey Unit 771104Radiological Data Summary and Survey Map.*

4 CHEMICAL CHARACTERIZATION AND HAZARDS

Based on a thorough review of historical and process knowledge, visual inspections, and personnel interviews, no additional chemical hazard sampling requirements were identified.

4.1 Asbestos

Asbestos containing building material is not present in or on Area AC (previously removed).

4.2 Beryllium (Be)

Area AC is not and has never been a beryllium-controlled area. Per the Beryllium Sampling Decision Tree in the PDSP, seven (7) biased beryllium smear samples were collected in Area AC, in accordance with the PDSP and the *Beryllium Characterization Procedure,* PRO-536-BCPR, Revision 0, September 9, 1999.

All beryllium smear sample results were less than the investigative limit of 0.1 $\mu g/100cm^2$. PDS beryllium laboratory sample data and location maps are contained in Attachment E, *Chemical Data Summaries and Sample Maps.*

4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]

Based upon the *B771 and B774 Hazards Characterization Report, 771 Closure Project,* Revision 0, dated June 12, 2001, personnel interviews, facility walk-downs, and historical process knowledge (WSRIC/WEMS), the Area AC did not contain hazardous waste storage units. A visual inspection of the building by 771/774 Industrial Hygiene personnel verified the absence of hazardous waste residuals and/or stains on the floor/concrete slab, walls, or ceiling. As a result of these observances, it has been determined that no sampling for RCRA/CERCLA constituents is required. The concrete generated from the demolition of the areas included in the scope of this report can be used for onsite recycling in accordance with the Concrete Recycling RSOP.

4.4 Polychlorinated Biphenyls (PCBs)

Based on historical knowledge, personnel interviews, and 771/774 Environmental Compliance Personnel walk-downs, Area AC never used/transferred free flowing/exposed PCB's. At one time the facility may have used PCB ballasts in its fluorescent light fixtures, however, all of these have been removed, and compliantly disposed of, resulting in no impact on demolition activities in this area.

Per the *B771 and B774 Hazards Characterization Report for the 771 Closure Project,* PCBs are present in some applied paints (i.e., on several walls and floors within the B771 and B774 Contamination Areas). Because additional paint sampling was not performed in Area AC, and because painted surfaces remain in the area (columns/walls/ceilings only), any painted debris generated during demolition that is not recycled on-site will be disposed of a PCB Bulk Product waste.

5 PHYSICAL HAZARDS

Physical hazards associated with Area AC are common to standard industrial environments, and include hazards associated with utilities. There are no other unique hazards associated with the facility. The facility has been relatively well maintained and is in good physical condition, therefore, does not present hazards associated with building deterioration.

Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of Area AC, and consequent waste management, is of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments B, C, D, and E) were verified and validated relative to MAN-127-PDSP, Pre-Demolition Survey Plan for D&D Facilities, and original project DQOs.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- the *number* of samples and surveys;
- the *types* of samples and surveys;
- the sampling/survey process as implemented "in the field"; and
- the laboratory analytical process, relative to accuracy and precision considerations.

Details of the DQA are presented in Attachment F. The DQA Checklists are provided in the individual survey unit packages (located in the Building 771 Characterization Files).

The Minimum Detectable Activity (MDA) for each PDS instrument was determined *a priori* based on typical parameters (background, efficiency, and count time). A list of radiological field instrumentation and associated sensitivities is presented in Table 1.

Table 1
PDS Radiological Field Instrumentation and Minimum Detectable Activities

Model	Measurement Type	MDA (dpm/100 cm^2)
NE Electra DP6	TSA	48
Eberline SAC-4	Removable (Smears)	10
NE Electra AP6	Scans	300

7 DECOMMISSIONING WASTE TYPES

The demolition and disposal of Area AC will generate a variety of wastes. Concrete can be used as backfill onsite in accordance with the RFCA RSOP for Recycling Concrete.

8 FACILITY CLASSIFICATION AND CONCLUSIONS

Based on the analysis of radiological, chemical and physical hazards, Area AC is classified as an RFCA Type 3 facility pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999). Based upon the results of this PDSR, Area AC meets the unrestricted release limits specified in the site Pre-Demolition Survey Plan and is ready

for demolition. The PDS for Area AC was performed in accordance with the DDCP and PDSP, all PDSP DQOs were met, and all data satisfied the PDSP DQA criteria.

A facility walkdown and historical review indicates that no RCRA/CERCLA constituents exist in Area AC (refer to Attachment G, Historical Review). Any painted debris generated during demolition that is not recycled on-site will be disposed of as PCB Bulk Product waste.

Radiological contamination in excess of the PDSP Table 7-1 limits was not detected in Area AC. The applicable limits are as follows:

Table 2
PDSP Table 7-1 Surface Contamination Limits

Radionuclides	**Total Average (dpm/100 cm^2) (1) ($DCGL_W$)**	**Total Maximum (dpm/100 cm^2) (2) ($DCGL_{EMC}$)**	**Removable (dpm/100 cm^2) ($DCGL_W$)**
Transuranics	100	300	20

(1) Measurements of average contamination should not be averaged over an area of more than 1 m^2.
(2) The maximum contamination level applies to an area of not more than 100 cm^2.

Based upon this PDSR, the Area AC can be demolished and the waste managed as sanitary and the concrete can be used for backfill on-site per the RFCA RSOP for Recycling Concrete.

To ensure that the facility remains free of contamination and that PDS data remain valid, Level 2 isolation controls have been established.

9 REFERENCES

B771 and B774 Hazards Characterization Report for the 771 Closure Project, dated June 12, 2001, Revision 0.

DOE/RFFO, CDPHE, EPA, 1996. *Rocky Flats Cleanup Agreement (RFCA)*, July 19, 1996.

DOE Order 5400.5, *Radiation Protection of the Public and the Environment*

DOE Order 414.1A, *Quality Assurance*

EPA, 1994. *The Data Quality Objective Process,* EPA QA/G-4.

K-H, 1999. *Decommissioning Program Plan*, June 21, 1999.

MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.

MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.

MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 4, July 15, 2002.

MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.

MARSSIM - *Multi-Agency Radiation Survey and Site Investigation Manual* (NUREG-1575, EPA 402-R-97-016).

PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure,* Rev. 1, May 22, 2001.

PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 2, March 10, 2003.

PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.

PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey,* Rev. 1, May 22, 2001.

PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.

PRO-563-ACPR, *Asbestos Characterization Procedure,* Revision 0, August 24, 1999.

PRO-536-BCPR, *Beryllium Characterization Procedure*, Revision 0, August 24, 1999.

RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition.

RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal.

RFETS, RFCA RSOP for Recycling Concrete, September 28, 1999

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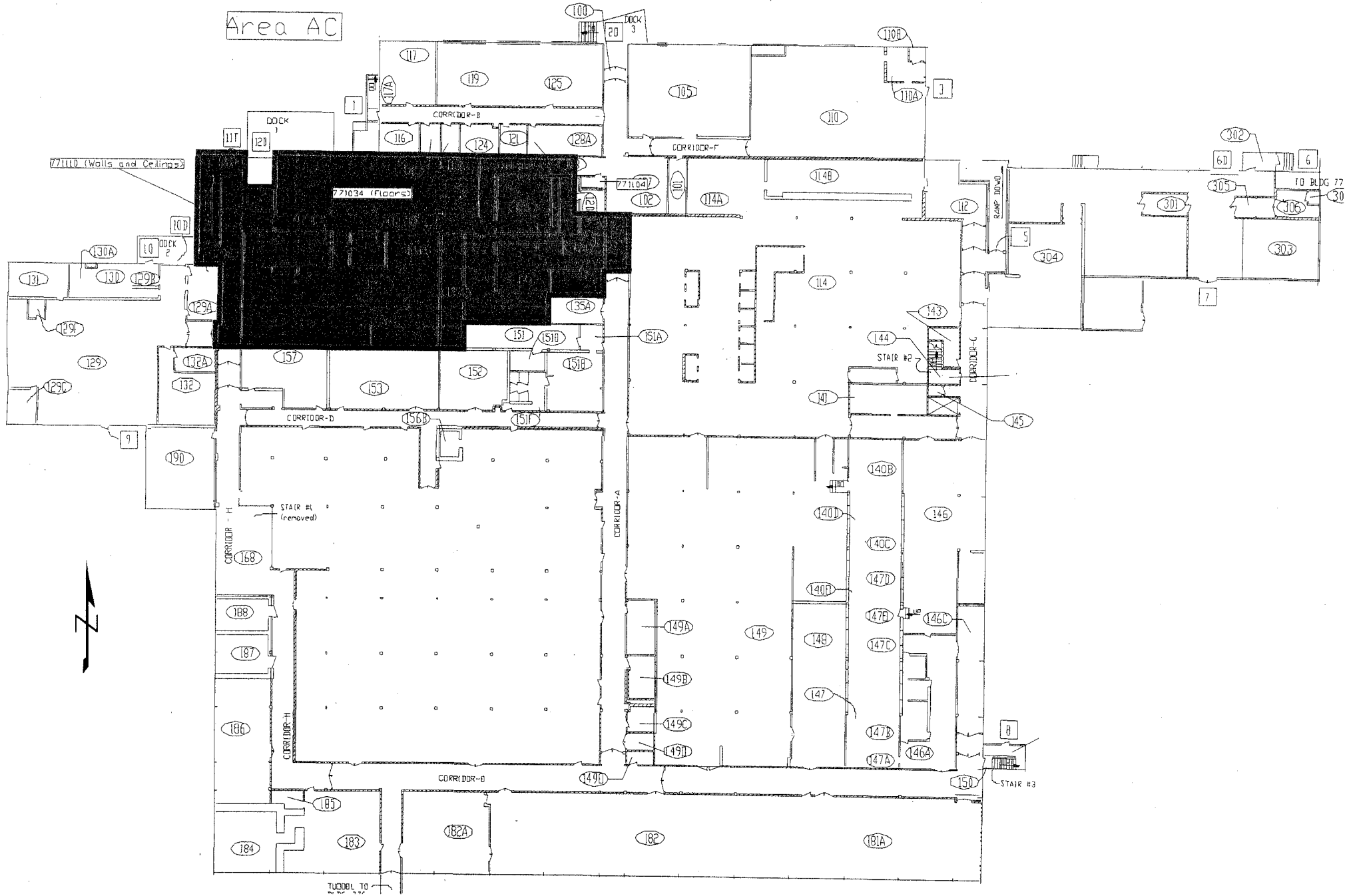
ATTACHMENT A

Survey Unit Overview Map


Area AC
771110 (Walls and Ceilings)
771034 (Floors)
771047
CORRIDOR-B
CORRIDOR-F
CORRIDOR-G
CORRIDOR-D
CORRIDOR-A
CORRIDOR-H
CORRIDOR-C
DOCK 1
DOCK 2
DOCK 3
RAMP DOWN
STAIR #1 (removed)
STAIR #2
STAIR #3
TO BLDG 77
TUNNEL TO

ATTACHMENT B

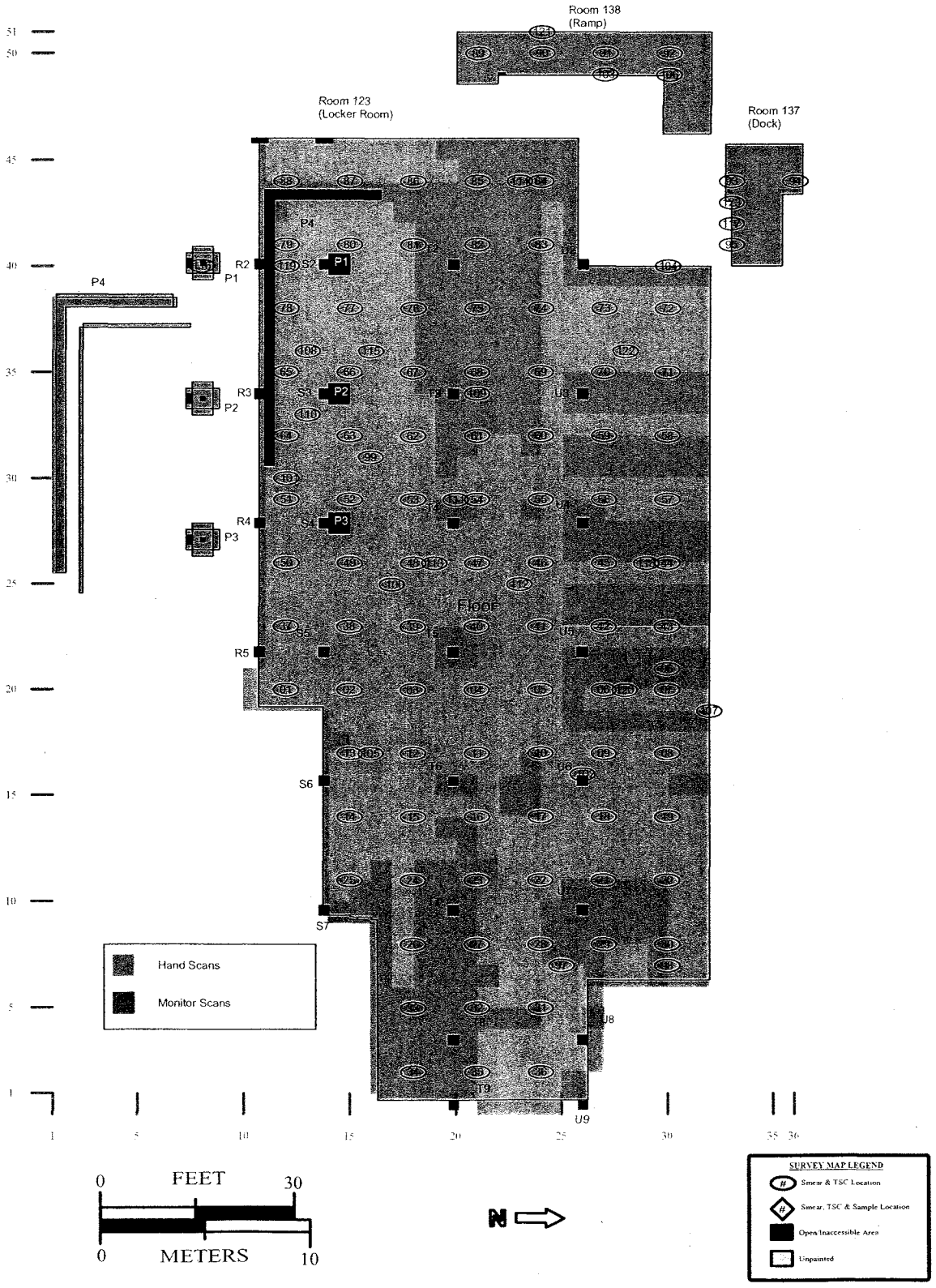
Survey Unit 771034
Radiological Data Summary and Survey Map

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AC **Survey Unit: 771034** **Classification: 2**
Building: 771
Survey Unit Description: Floor for Rooms 120-138, Corridor A&H (north)

Total Floor Area: 820 sq. m **Total Area: 840 sq. m** **Grid Size: 3m x 3m**

SURVEY UNIT 771034 - MAP 1 OF 4



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Survey Area: AC	Survey Unit: 771034	Building: 771

Description: B771 Locker Room Floor Area (Room 120-138, Corridor A and H north)

Rocky Flats Environmental Technology Site
Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 123 | Nbr Biased Measurements Required: 0 | Nbr QC Required: 7

Nbr Random Measurements Performed: 123 | Nbr Biased Measurements Performed: 0 | Nbr QC Performed: 7

Alpha

Maximum:	91.6 dpm/100cm²
Minimum:	-7.5 dpm/100cm²
Mean:	25.0 dpm/100cm²
Standard Deviation:	20.3
QC Maximum:	41.2 dpm/100cm²
QC Minimum:	16.9 dpm/100cm²
QC Mean:	26.9 dpm/100cm²
Transuranic DCGL$_W$:	100.0 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300.0 dpm/100cm²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 123 | Nbr Biased Measurements Required: 0

Nbr Random Measurements Performed: 123 | Nbr Biased Measurements Performed: 0

Alpha

Maximum:	8.8 dpm/100cm²
Minimum:	-1.8 dpm/100cm²
Mean:	0.7 dpm/100cm²
Standard Deviation:	1.9
Transuranic DCGL$_W$:	20.0 dpm/100cm²

Media Sample Results

Nbr Random Required: 0 | Nbr Biased Required: 0

Nbr Random Collected: 0 | Nbr Biased Collected: 0

Uranium

Maximum:	NA dpm/100cm²
Minimum:	NA dpm/100cm²
Mean:	NA dpm/100cm²
Standard Deviation:	NA
Uranium DCGL$_W$:	5,000 dpm/100cm²
Uranium DCGL$_{EMC}$:	15,000 dpm/100cm²

Transuranic

Maximum:	NA dpm/100cm²
Minimum:	NA dpm/100cm²
Mean:	NA dpm/100cm²
Standard Deviation:	NA
Transuranic DCGL$_W$:	100 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300 dpm/100cm²

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

Survey Area: AC	Survey Unit: 771034	Building: 771

Description: B771 Locker Room Floor Area (Room 120-138, Corridor A and H north)

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm²)		Survey Type
							Alpha	Beta	Alpha	Beta	
18	702353	06/30/04	Electra	2380	DP-6	08/18/04	0.218	NA	48.0	NA	T
19	512326	06/30/04	Electra	394	DP-6	12/04/04	0.223	NA	48.0	NA	T
20	701841	06/30/04	Electra	2372	DP-6	08/01/04	0.217	NA	48.0	NA	T
21	712563	06/30/04	Electra	1551	DP-6	12/21/04	0.227	NA	48.0	NA	T
22	712563	07/01/04	SAC-4	888	NA	12/17/04	0.330	NA	10.0	10.0	R
23	712563	07/01/04	SAC-4	1354	NA	09/18/04	0.330	NA	10.0	10.0	R
24	712563	07/01/04	SAC-4	1491	NA	09/17/04	0.330	NA	10.0	10.0	R
25	712563	07/01/04	SAC-4	1185	NA	08/09/04	0.330	NA	10.0	10.0	R
26	514979	07/01/04	Electra	1536	DP-6	12/22/04	0.218	NA	48.0	NA	T
27	702353	07/01/04	Electra	2380	DP-6	08/18/04	0.218	NA	48.0	NA	T
28	712563	07/02/04	SAC-4	888	NA	12/17/04	0.330	NA	10.0	10.0	R
29	712563	07/02/04	SAC-4	1354	NA	09/18/04	0.330	NA	10.0	10.0	R
30	712563	07/02/04	SAC-4	1491	NA	09/17/04	0.330	NA	10.0	10.0	R
31	712563	07/02/04	SAC-4	1185	NA	08/09/04	0.330	NA	10.0	10.0	R
32	514979	07/01/02	Electra	1375	DP-6	09/05/04	0.222	NA	48.0	NA	T
33	702353	07/02/04	Electra	1375	DP-6	09/05/04	0.222	NA	48.0	NA	T
35	702353	07/02/04	Electra	394	DP-6	12/04/04	0.223	NA	48.0	NA	T

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

Survey Area: AC	Survey Unit: 771034	Building: 771

Description: B771 Locker Room Floor Area (Room 120-138, Corridor A and H north)

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771034PRP-N001	28	-0.3	N/A	
771034PRP-N002	29	-0.9	N/A	
771034PRP-N003	30	1.2	N/A	
771034PRP-N004	23	1.5	N/A	
771034PRP-N005	22	-0.3	N/A	
771034PRP-N006	22	-0.3	N/A	
771034PRP-N007	23	0.0	N/A	
771034PRP-N008	24	-0.9	N/A	
771034PRP-N009	25	1.2	N/A	
771034PRP-N010	25	4.2	N/A	
771034PRP-N011	31	4.9	N/A	
771034PRP-N012	28	1.2	N/A	
771034PRP-N013	31	-1.2	N/A	
771034PRP-N014	30	-0.3	N/A	
771034PRP-N015	31	3.3	N/A	
771034PRP-N016	28	-0.3	N/A	
771034PRP-N017	29	-0.9	N/A	
771034PRP-N018	22	-0.3	N/A	
771034PRP-N019	23	0.0	N/A	
771034PRP-N020	24	-0.9	N/A	
771034PRP-N021	25	-0.3	N/A	
771034PRP-N022	30	2.7	N/A	
771034PRP-N023	29	-0.9	N/A	
771034PRP-N024	28	-0.3	N/A	
771034PRP-N025	29	-0.9	N/A	
771034PRP-N026	31	0.3	N/A	
771034PRP-N027	30	2.7	N/A	
771034PRP-N028	30	-0.3	N/A	
771034PRP-N029	22	-0.3	N/A	

Survey Area: AC	Survey Unit: 771034	Building: 771

Description: B771 Locker Room Floor Area (Room 120-138, Corridor A and H north)

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771034PRP-N030	23	0.0	N/A	
771034PRP-N031	28	4.2	N/A	
771034PRP-N032	28	-0.3	N/A	
771034PRP-N033	28	-0.3	N/A	
771034PRP-N034	31	7.9	N/A	
771034PRP-N035	29	0.6	N/A	
771034PRP-N036	31	4.9	N/A	
771034PRP-N037	23	0.0	N/A	
771034PRP-N038	25	-0.3	N/A	
771034PRP-N039	24	-0.9	N/A	
771034PRP-N040	23	0.0	N/A	
771034PRP-N041	24	-0.9	N/A	
771034PRP-N042	25	5.8	N/A	
771034PRP-N043	22	2.7	N/A	
771034PRP-N044	23	0.0	N/A	
771034PRP-N045	24	0.6	N/A	
771034PRP-N046	25	4.2	N/A	
771034PRP-N047	22	-0.3	N/A	
771034PRP-N048	23	0.0	N/A	
771034PRP-N049	24	0.6	N/A	
771034PRP-N050	25	-0.3	N/A	
771034PRP-N051	24	-0.9	N/A	
771034PRP-N052	25	4.2	N/A	
771034PRP-N053	22	-0.3	N/A	
771034PRP-N054	23	1.5	N/A	
771034PRP-N055	24	-0.9	N/A	
771034PRP-N056	25	1.2	N/A	
771034PRP-N057	22	1.2	N/A	
771034PRP-N058	23	0.0	N/A	

Survey Area: AC	**Survey Unit:** 771034	**Building:** 771

Description: B771 Locker Room Floor Area (Room 120-138, Corridor A and H north)

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771034PRP-N059	24	0.6	N/A	
771034PRP-N060	25	5.8	N/A	
771034PRP-N061	22	-0.3	N/A	
771034PRP-N062	23	0.0	N/A	
771034PRP-N063	24	-0.9	N/A	
771034PRP-N064	25	1.2	N/A	
771034PRP-N065	22	1.2	N/A	
771034PRP-N066	25	2.7	N/A	
771034PRP-N067	23	0.0	N/A	
771034PRP-N068	22	1.2	N/A	
771034PRP-N069	24	-0.9	N/A	
771034PRP-N070	25	-0.3	N/A	
771034PRP-N071	22	-0.3	N/A	
771034PRP-N072	23	1.5	N/A	
771034PRP-N073	24	-0.9	N/A	
771034PRP-N074	25	1.2	N/A	
771034PRP-N075	22	-0.3	N/A	
771034PRP-N076	23	0.0	N/A	
771034PRP-N077	24	2.1	N/A	
771034PRP-N078	25	-1.8	N/A	
771034PRP-N079	22	-0.3	N/A	
771034PRP-N080	23	0.0	N/A	
771034PRP-N081	24	2.1	N/A	
771034PRP-N082	25	-1.8	N/A	
771034PRP-N083	22	1.2	N/A	
771034PRP-N084	23	1.5	N/A	
771034PRP-N085	24	-0.9	N/A	
771034PRP-N086	25	8.8	N/A	
771034PRP-N087	22	1.2	N/A	

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Survey Area: AC	Survey Unit: 771034	Building: 771

Description: B771 Locker Room Floor Area (Room 120-138, Corridor A and H north)

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771034PRP-N088	23	0.0	N/A	
771034PRP-N089	24	0.6	N/A	
771034PRP-N090	25	4.2	N/A	
771034PRP-N091	22	-0.3	N/A	
771034PRP-N092	23	0.0	N/A	
771034PRP-N093	24	-0.9	N/A	
771034PRP-N094	25	4.2	N/A	
771034PRP-N095	22	-0.3	N/A	
771034PRP-N096	25	4.2	N/A	
771034PRP-N097	29	-0.9	N/A	
771034PRP-N098	23	0.0	N/A	
771034PRP-N099	24	0.6	N/A	
771034PRP-N100	22	1.2	N/A	
771034PRP-N101	25	-0.3	N/A	
771034PRP-N102	24	-0.9	N/A	
771034PRP-N103	22	1.2	N/A	
771034PRP-N104	22	-0.3	N/A	
771034PRP-N105	30	-0.3	N/A	
771034PRP-N106	23	1.5	N/A	
771034PRP-N107	22	1.2	N/A	
771034PRP-N108	24	-0.9	N/A	
771034PRP-N109	23	0.0	N/A	
771034PRP-N110	25	1.2	N/A	
771034PRP-N111	24	0.6	N/A	
771034PRP-N112	22	-0.3	N/A	
771034PRP-N113	23	0.0	N/A	
771034PRP-N114	24	-0.9	N/A	
771034PRP-N115	25	1.2	N/A	
771034PRP-N116	23	1.5	N/A	

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Survey Area: AC	Survey Unit: 771034	Building: 771

Description: B771 Locker Room Floor Area (Room 120-138, Corridor A and H north)

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771034PRP-N117	22	-0.3	N/A	
771034PRP-N118	23	0.0	N/A	
771034PRP-N119	24	-0.9	N/A	
771034PRP-N120	25	2.7	N/A	
771034PRP-N121	22	-0.3	N/A	
771034PRP-N122	23	1.5	N/A	
771034PRP-N123	24	-0.9	N/A	

Comments:

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Survey Area: AC	Survey Unit: 771034	Building: 771

Description: B771 Locker Room Floor Area (Room 120-138, Corridor A and H north)

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771034PRP-N001	32	13.7	N/A	
771034PRP-N002	33	13.7	N/A	
771034PRP-N003	32	67.7	N/A	
771034PRP-N004	26	20.2	N/A	
771034PRP-N005	26	17.0	N/A	
771034PRP-N006	20	20.4	N/A	
771034PRP-N007	20	7.9	N/A	
771034PRP-N008	20	11.1	N/A	
771034PRP-N009	20	23.6	N/A	
771034PRP-N010	26	29.4	N/A	
771034PRP-N011	33	58.7	N/A	
771034PRP-N012	32	25.4	N/A	
771034PRP-N013	32	58.7	N/A	
771034PRP-N014	32	22.7	N/A	
771034PRP-N015	32	40.7	N/A	
771034PRP-N016	33	46.6	N/A	
771034PRP-N017	33	73.6	N/A	
771034PRP-N018	20	11.1	N/A	
771034PRP-N019	20	5.2	N/A	
771034PRP-N020	20	5.2	N/A	
771034PRP-N021	20	11.1	N/A	
771034PRP-N022	32	37.6	N/A	
771034PRP-N023	33	40.7	N/A	
771034PRP-N024	33	19.5	N/A	
771034PRP-N025	32	64.6	N/A	
771034PRP-N026	32	85.8	N/A	
771034PRP-N027	33	67.7	N/A	

Survey Area: AC	Survey Unit: 771034	Building: 771

Description: B771 Locker Room Floor Area (Room 120-138, Corridor A and H north)

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771034PRP-N028	33	91.6	N/A	
771034PRP-N029	20	29.6	N/A	
771034PRP-N030	26	29.4	N/A	
771034PRP-N031	33	64.6	N/A	
771034PRP-N032	35	49.4	N/A	
771034PRP-N033	32	79.4	N/A	
771034PRP-N034	32	88.5	N/A	
771034PRP-N035	33	67.7	N/A	
771034PRP-N036	32	31.7	N/A	
771034QRP-N037	26	41.2	N/A	
771034PRP-N037	27	56.9	N/A	
771034QRP-N038	26	29.3	N/A	
771034PRP-N038	27	35.3	N/A	
771034PRP-N039	26	26.2	N/A	
771034PRP-N040	20	26.4	N/A	
771034PRP-N041	20	38.8	N/A	
771034PRP-N042	20	20.4	N/A	
771034PRP-N043	20	7.9	N/A	
771034PRP-N044	20	14.4	N/A	
771034PRP-N045	21	9.9	N/A	
771034PRP-N046	21	6.8	N/A	
771034PRP-N047	21	33.3	N/A	
771034PRP-N048	21	16.5	N/A	
771034PRP-N049	26	32.6	N/A	
771034PRP-N050	26	47.7	N/A	
771034PRP-N051	19	7.3	N/A	
771034PRP-N052	19	16.2	N/A	

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Survey Area: AC	Survey Unit: 771034	Building: 771

Description: B771 Locker Room Floor Area (Room 120-138, Corridor A and H north)

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771034PRP-N053	19	19.4	N/A	
771034PRP-N054	21	6.4	N/A	
771034PRP-N055	21	24.5	N/A	
771034PRP-N056	19	7.3	N/A	
771034PRP-N057	19	25.2	N/A	
771034PRP-N058	19	7.3	N/A	
771034PRP-N059	19	1.4	N/A	
771034PRP-N060	18	5.1	N/A	
771034PRP-N061	21	24.5	N/A	
771034PRP-N062	19	31.5	N/A	
771034PRP-N063	19	37.3	N/A	
771034PRP-N064	19	13.5	N/A	
771034PRP-N065	19	1.4	N/A	
771034QRP-N066	26	32.1	N/A	
771034PRP-N066	27	29.4	N/A	
771034PRP-N067	21	9.9	N/A	
771034PRP-N068	21	15.7	N/A	
771034PRP-N069	20	5.2	N/A	
771034PRP-N070	18	35.3	N/A	
771034PRP-N071	19	31.5	N/A	
771034PRP-N072	19	-7.5	N/A	
771034PRP-N073	19	43.1	N/A	
771034PRP-N074	19	13.5	N/A	
771034PRP-N075	20	7.9	N/A	
771034PRP-N076	19	31.5	N/A	
771034PRP-N077	19	1.4	N/A	
771034PRP-N078	19	16.2	N/A	

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Survey Area: AC	Survey Unit: 771034	Building: 771

Description: B771 Locker Room Floor Area (Room 120-138, Corridor A and H north)

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771034PRP-N079	19	22.5	N/A	
771034PRP-N080	19	10.4	N/A	
771034PRP-N081	19	19.4	N/A	
771034PRP-N082	20	11.1	N/A	
771034PRP-N083	18	17.0	N/A	
771034PRP-N084	21	13.0	N/A	
771034PRP-N085	21	21.8	N/A	
771034PRP-N086	19	10.4	N/A	
771034PRP-N087	19	19.4	N/A	
771034PRP-N088	19	10.4	N/A	
771034PRP-N089	19	16.2	N/A	
771034PRP-N090	18	14.2	N/A	
771034PRP-N091	18	17.0	N/A	
771034PRP-N092	18	29.4	N/A	
771034PRP-N093	21	9.9	N/A	
771034PRP-N094	21	18.7	N/A	
771034PRP-N095	21	21.8	N/A	
771034PRP-N096	26	1.8	N/A	
771034PRP-N097	33	46.6	N/A	
771034PRP-N098	20	23.6	N/A	
771034PRP-N099	19	4.6	N/A	
771034QRP-N100	26	16.9	N/A	
771034PRP-N100	27	32.6	N/A	
771034PRP-N101	19	13.5	N/A	
771034PRP-N102	26	17.0	N/A	
771034PRP-N103	18	-4.1	N/A	
771034QRP-N104	26	22.9	N/A	

Survey Area: AC	Survey Unit: 771034	Building: 771

Description: B771 Locker Room Floor Area (Room 120-138, Corridor A and H north)

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771034PRP-N104	27	20.2	N/A	
771034PRP-N105	32	22.7	N/A	
771034PRP-N106	18	23.4	N/A	
771034PRP-N107	26	7.8	N/A	
771034PRP-N108	19	1.4	N/A	
771034PRP-N109	21	24.0	N/A	
771034PRP-N110	19	19.4	N/A	
771034QRP-N111	26	20.1	N/A	
771034PRP-N111	27	35.3	N/A	
771034PRP-N112	21	54.0	N/A	
771034PRP-N113	21	18.7	N/A	
771034PRP-N114	21	30.6	N/A	
771034PRP-N115	21	4.2	N/A	
771034QRP-N116	26	26.1	N/A	
771034PRP-N116	27	17.0	N/A	
771034PRP-N117	21	36.4	N/A	
771034PRP-N118	20	17.1	N/A	
771034PRP-N119	19	1.4	N/A	
771034PRP-N120	20	-4.1	N/A	
771034PRP-N121	18	11.0	N/A	
771034PRP-N122	19	19.4	N/A	
771034PRP-N123	21	36.4	N/A	

Comments:

ATTACHMENT C

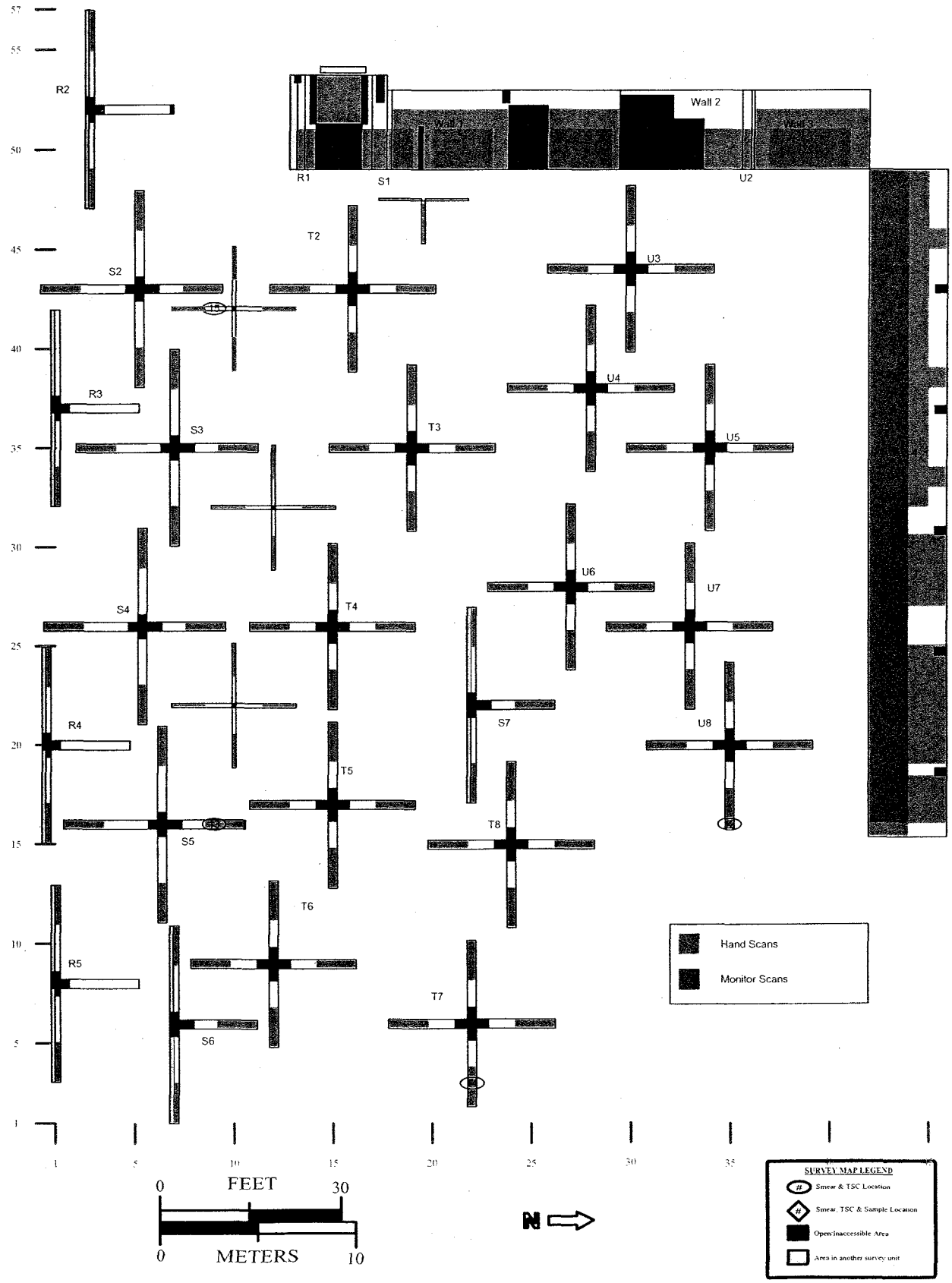
Survey Unit 771110
Radiological Data Summary and Survey Map

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AC **Survey Unit: 771110** **Classification: 2**
Building: 771
Survey Unit Description: Walls and ceiling for Rooms 120-138, Corridor A&H (north)

Total Floor Area: 820 sq. m **Total Area: 2556 sq. m** **Grid Size: 13m x 13m**

SURVEY UNIT 771110 - MAP 1 OF 3

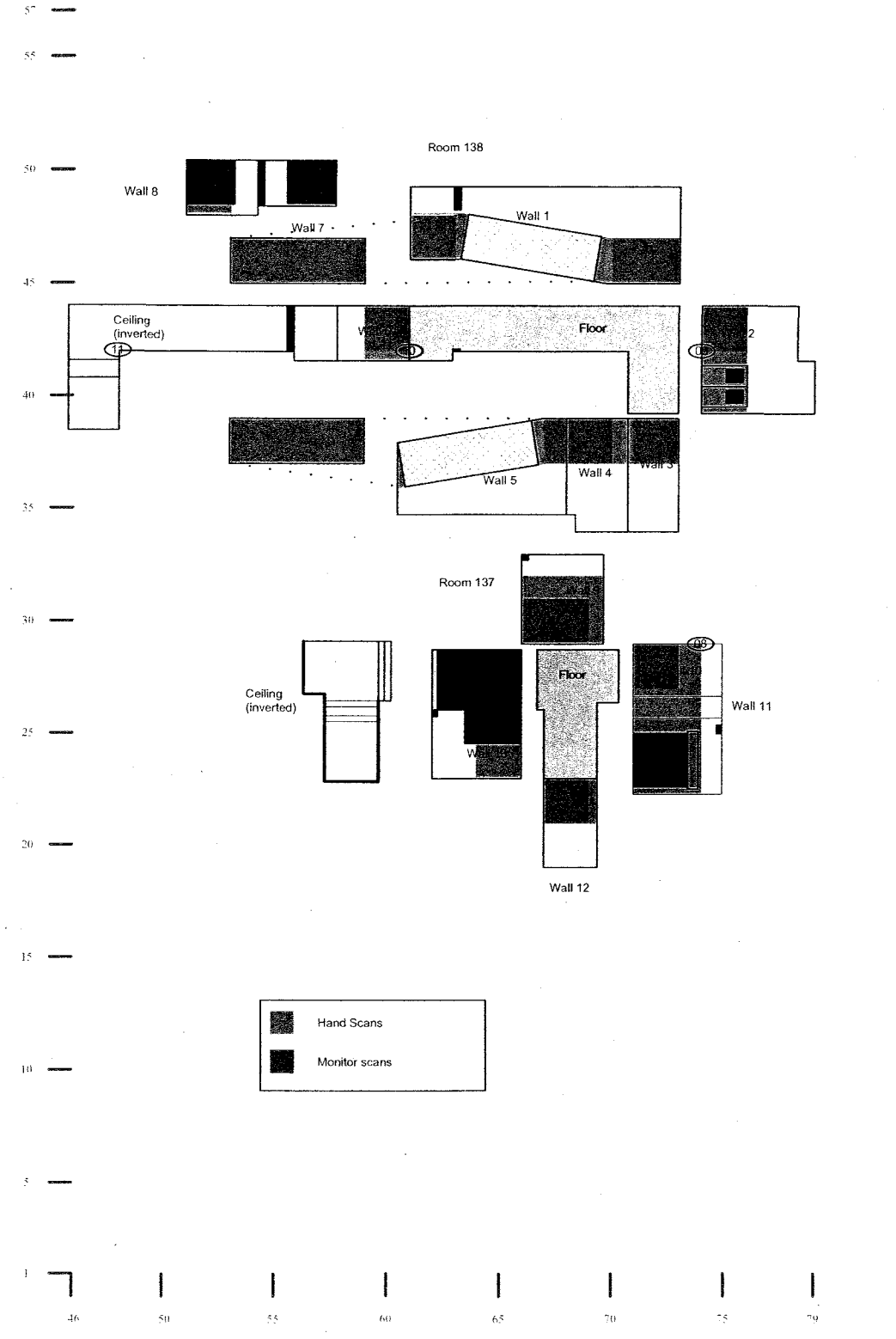


RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AC **Survey Unit: 771110** **Classification: 2**
Building: 771
Survey Unit Description: Walls and ceiling for Rooms 120-138, Corridor A&H (north)

Total Floor Area: 820 sq. m **Total Area: 2556 sq. m** **Grid Size: 13m x13m**

SURVEY UNIT 771110 - MAP 2 OF 3



0 Feet 30
0 Meters 10

N

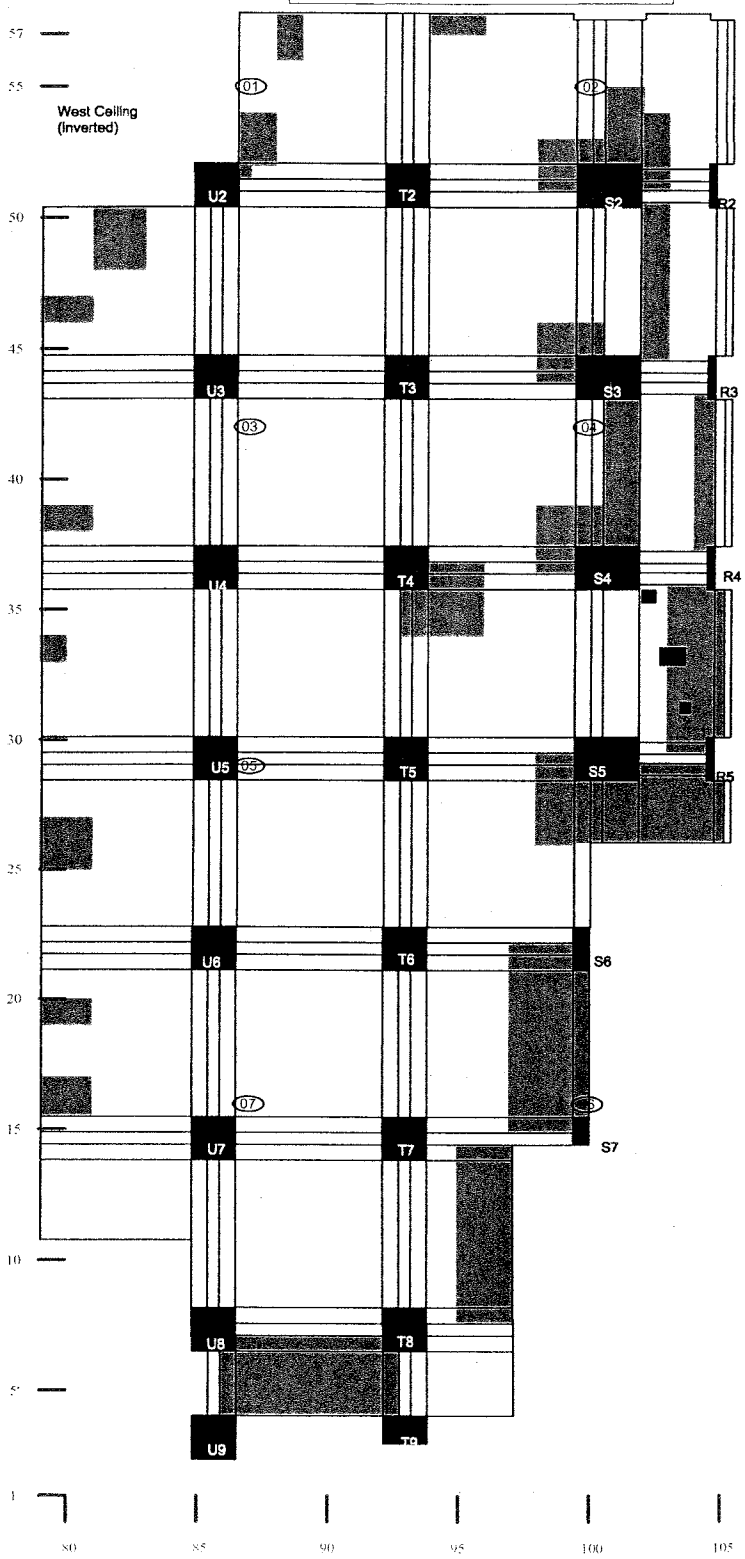
Survey Map Legend
- # Smear and TSA Location
- # Smear, TSA and Sample Location
- Open/Inaccesible Area
- Unpainted Area

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AC Survey Unit: 771110 Classification: 2
Building: 771
Survey Unit Description: Walls and ceiling for Rooms 120-138, Cooridor A&H (north end)

Total Floor Area: 820 sq. m Total Area: 2556 sq. m Grid Size: 13m x 13m

SURVEY UNIT 771110 - MAP 3 OF 3



0 Feet 30
0 Meters 10

N

Survey Map Legend

- # Smear and TSA Location
- # Smear, TSA and Sample Location
- Open/Inaccesible Area
- Unpainted Area

Survey Area: AC	Survey Unit: 771110	Building: 771

Description: Walls and Ceilings for Rooms 120-138, Corridor A&H (North)

Rocky Flats Environmental Technology Site
Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 0 | Nbr QC Required: 2

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 0 | Nbr QC Performed: 2

Alpha

Maximum:	14.9 dpm/100cm²
Minimum:	-9.4 dpm/100cm²
Mean:	2.2 dpm/100cm²
Standard Deviation:	8.8
QC Maximum:	-4.6 dpm/100cm²
QC Minimum:	-11.0 dpm/100cm²
QC Mean:	-7.8 dpm/100cm²
Transuranic DCGL$_W$:	100.0 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300.0 dpm/100cm²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 0

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 0

Alpha

Maximum:	3.0 dpm/100cm²
Minimum:	-0.6 dpm/100cm²
Mean:	0.6 dpm/100cm²
Standard Deviation:	1.2
Transuranic DCGL$_W$:	20.0 dpm/100cm²

Media Sample Results

Nbr Random Required: 15 | Nbr Biased Required: 0

Nbr Random Collected: 15 | Nbr Biased Collected: 0

Uranium

Maximum:	NA dpm/100cm²
Minimum:	NA dpm/100cm²
Mean:	NA dpm/100cm²
Standard Deviation:	NA
Uranium DCGL$_W$:	5,000 dpm/100cm²
Uranium DCGL$_{EMC}$:	15,000 dpm/100cm²

Transuranic

Maximum:	11 dpm/100cm²
Minimum:	0 dpm/100cm²
Mean:	3 dpm/100cm²
Standard Deviation:	3
Transuranic DCGL$_W$:	100 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300 dpm/100cm²

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

Survey Area: AC	Survey Unit: 771110	Building: 771

Description: Walls and Ceilings for Rooms 120-138, Corridor A&H (North)

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	514979	07/01/04	Electra	1536	DP-6	12/22/04	0.218	NA	48.0	NA	T
2	702353	07/01/04	Electra	2380	DP-6	08/18/04	0.218	NA	48.0	NA	T
3	702353	07/01/04	SAC-4	1178	NA	08/17/04	0.330	NA	10.0	10.0	R
4	702353	07/01/04	SAC-4	1410	NA	10/13/04	0.330	NA	10.0	10.0	R
5	701841	07/02/04	Electra	1536	DP-6	08/10/04	0.218	NA	48.0	NA	T
6	701841	07/02/04	SAC-4	1178	NA	08/17/04	0.330	NA	10.0	10.0	R

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

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Survey Area: AC	Survey Unit: 771110	Building: 771

Description: Walls and Ceilings for Rooms 120-138, Corridor A&H (North)

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771110PRP-N001	3	-0.3	N/A	
771110PRP-N002	3	-0.3	N/A	
771110PRP-N003	3	-0.3	N/A	
771110PRP-N004	3	1.2	N/A	
771110PRP-N005	4	3.0	N/A	
771110PRP-N006	6	0.9	N/A	
771110PRP-N007	6	-0.6	N/A	
771110PRP-N008	3	1.2	N/A	
771110PRP-N009	4	0.0	N/A	
771110PRP-N010	3	-0.3	N/A	
771110PRP-N011	4	3.0	N/A	
771110PRP-N012	4	0.0	N/A	
771110PRP-N013	4	0.0	N/A	
771110PRP-N014	6	-0.6	N/A	
771110PRP-N015	4	1.5	N/A	

Comments:

Survey Area: AC	Survey Unit: 771110	Building: 771

Description: Walls and Ceilings for Rooms 120-138, Corridor A&H (North)

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771110PRP-N001	2	3.0	N/A	
771110PRP-N002	2	14.9	N/A	
771110PRP-N003	2	-9.4	N/A	
771110PRP-N004	2	8.9	N/A	
771110PRP-N005	2	8.9	N/A	
771110PRP-N006	5	-9.4	N/A	
771110PRP-N007	5	-6.2	N/A	
771110PRP-N008	2	14.9	N/A	
771110PRP-N009	1	-6.2	N/A	
771110QRP-N009	2	-11.0	N/A	
771110PRP-N010	1	3.0	N/A	
771110QRP-N010	2	-4.6	N/A	
771110PRP-N011	2	8.9	N/A	
771110PRP-N012	1	-3.5	N/A	
771110PRP-N013	1	12.1	N/A	
771110PRP-N014	5	-6.2	N/A	
771110PRP-N015	1	-0.3	N/A	

Comments:

Survey Area: AC	Survey Unit: 771110	Building: 771

Description: Walls and Ceilings for Rooms 120-138, Corridor A&H (North)

Media Samples Data Sheet

Site Sample ID / Nbr Description	Nuclide	Sample (pCi/g)	Sample MDA (pCi/g)	Weight (g)	Surface Area (in²)	Sample Nuclide (dpm/100cm²)	Sample Nuclide MDA (dpm/100cm²)	Sample Total (dpm/100cm²)
04Z0583-001.001 101 DEFAULT	U234	NA	NA	29.66	26.3	NA	NA	
	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.1100	0.1220			4	5	**Transuranic**
	Am241	0.1600	0.1530			6	6	11
04Z0583-002.001 102 DEFAULT	U234	NA	NA	33.08	26.3	NA	NA	
	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0302	0.1640			1	7	**Transuranic**
	Am241	0.0124	0.0962			1	4	2
04Z0583-003.001 103 DEFAULT	U234	NA	NA	36.72	26.3	NA	NA	
	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.1070	0.1470			5	7	**Transuranic**
	Am241	0.0125	0.1770			1	9	6
04Z0583-004.001 104 DEFAULT	U234	NA	NA	30.04	26.3	NA	NA	
	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.1110	0.1230			4	5	**Transuranic**
	Am241	-0.0002	0.1190			0	5	4
04Z0583-005.001 105 DEFAULT	U234	NA	NA	27.03	26.3	NA	NA	
	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0000	0.0728			0	3	**Transuranic**
	Am241	0.0325	0.0822			1	3	1
04Z0583-006.001 106 DEFAULT	U234	NA	NA	35.83	26.3	NA	NA	
	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0867	0.1220			4	6	Transuranic
	Am241	-0.0231	0.1260			-1	6	3
04Z0583-007.001 107 DEFAULT	U234	NA	NA	22.76	26.3	NA	NA	
	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0725	0.0725			2	2	**Transuranic**
	Am241	0.0320	0.1120			1	3	3

Comments:

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Survey Area: AC	Survey Unit: 771110	Building: 771

Description: Walls and Ceilings for Rooms 120-138, Corridor A&H (North)

Media Samples Data Sheet

Site Sample ID / Nbr Description	Nuclide	Sample (pCi/g)	Sample MDA (pCi/g)	Weight (g)	Surface Area (in^2)	Sample Nuclide ($dpm/100cm^2$)	Sample Nuclide MDA ($dpm/100cm^2$)	Sample Total ($dpm/100cm^2$)
04Z0583-008.001 108	U234	NA	NA	6.32	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0000	0.0717			0	1	**Transuranic**
	Am241	0.0243	0.0936			0	1	0
04Z0583-009.001 109	U234	NA	NA	39.41	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0169	0.1170			1	6	**Transuranic**
	Am241	-0.0257	0.1560			-1	8	0
04Z0583-010.001 110	U234	NA	NA	40.26	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0211	0.0317			1	2	**Transuranic**
	Am241	0.0300	0.1580			2	8	3
04Z0583-011.001 111	U234	NA	NA	18.50	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.1290	0.0708			3	2	**Transuranic**
	Am241	0.0117	0.1650			0	4	3
04Z0583-012.001 112	U234	NA	NA	31.66	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0365	0.0658			2	3	**Transuranic**
	Am241	0.1310	0.2550			5	11	7
04Z0583-013.001 113	U234	NA	NA	27.25	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0199	0.0298			1	1	Transuranic
	Am241	-0.0006	0.1560			0	6	1
04Z0583-014.001 114	U234	NA	NA	37.76	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0128	0.0990			1	5	**Transuranic**
	Am241	0.0176	0.1240			1	6	2

Survey Area: AC	Survey Unit: 771110	Building: 771

Description: Walls and Ceilings for Rooms 120-138, Corridor A&H (North)

Media Samples Data Sheet

Site Sample ID / Nbr --- Description	Nuclide	Sample (pCi/g)	Sample MDA (pCi/g)	Weight (g)	Surface Area (in^2)	Sample Nuclide ($dpm/100cm^2$)	Sample Nuclide MDA ($dpm/100cm^2$)	Sample Total ($dpm/100cm^2$)
04Z0583-015.001 115	U234	NA	NA	37.81	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0185	0.1640			1	8	**Transuranic**
	Am241	0.0218	0.1500			1	7	2

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ATTACHMENT D

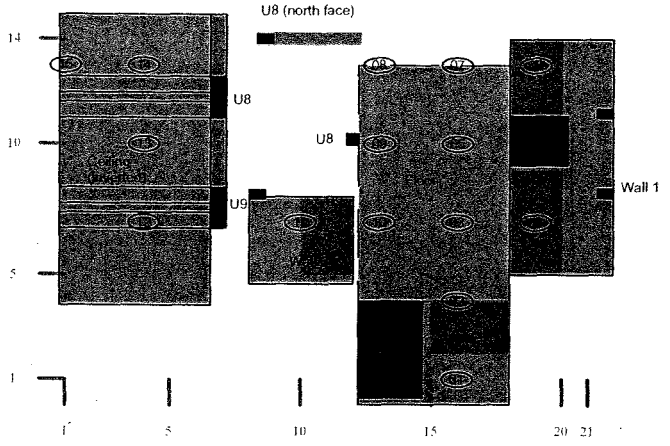
Survey Unit 771104
Radiological Data Summary and Survey Map

RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

Survey Area: AC **Survey Unit: 771104** **Classification: 1**
Building: 771
Survey Unit Description: First floor (north Corridor A)

Total Floor Area: 53 sq. m **Total Area: 180 sq. m** **Grid Size: 3m x 3m**

SURVEY UNIT 771104 - MAP 1 OF 1



Hand Scans

Monitor Scans

0 FEET 30

0 METERS 10

N

SURVEY MAP LEGEND

Smear & TSC Location

Smear, TSC & Sample Location

Open/Inaccessible Area

Upainted Area

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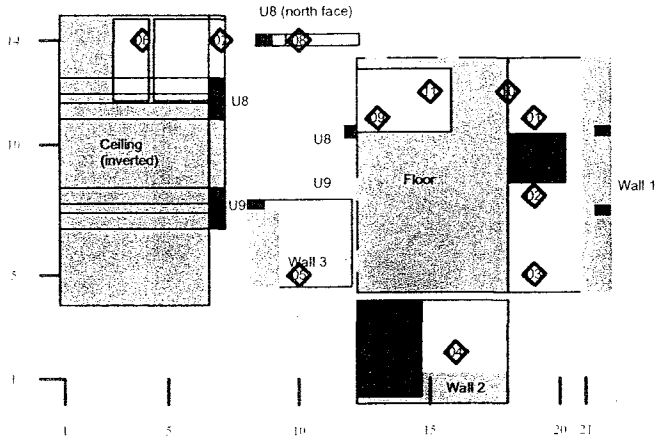
RADIOLOGICAL CLOSEOUT SURVEY FOR THE 771 CLUSTER

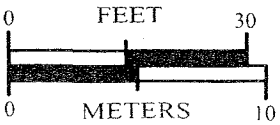
Survey Area: AC **Survey Unit: 771104** **Classification: 1**
Building: 771
Survey Unit Description: First floor (north Corridor A)

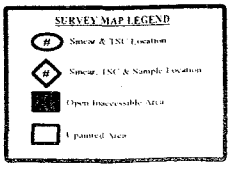
Total Floor Area: 53 sq. m **Total Area: 180 sq. m** **Grid Size: 3m x 3m**

SURVEY UNIT 771104 - MAP 1 OF 1

Sample Locations







Survey Area: AC	Survey Unit: 771104	Building: 771

Description: B771 North section Corridor A, East Section C, Rm 127, Rm 120A

Rocky Flats Environmental Technology Site
Final Radiological Survey Summary Results

Total Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 0 | Nbr QC Required: 2

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 0 | Nbr QC Performed: 2

Alpha

Maximum:	40.5 dpm/100cm²
Minimum:	-2.7 dpm/100cm²
Mean:	14.0 dpm/100cm²
Standard Deviation:	11.7
QC Maximum:	8.9 dpm/100cm²
QC Minimum:	2.9 dpm/100cm²
QC Mean:	5.9 dpm/100cm²
Transuranic DCGL$_W$:	100.0 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300.0 dpm/100cm²

Removable Surface Activity Measurements

Nbr Random Measurements Required: 15 | Nbr Biased Measurements Required: 0

Nbr Random Measurements Performed: 15 | Nbr Biased Measurements Performed: 0

Alpha

Maximum:	3.3 dpm/100cm²
Minimum:	-0.6 dpm/100cm²
Mean:	0.8 dpm/100cm²
Standard Deviation:	1.1
Transuranic DCGL$_W$:	20.0 dpm/100cm²

Media Sample Results

Nbr Random Required: 15 | Nbr Biased Required: 0

Nbr Random Collected: 15 | Nbr Biased Collected: 0

Uranium

Maximum:	NA dpm/100cm²
Minimum:	NA dpm/100cm²
Mean:	NA dpm/100cm²
Standard Deviation:	NA
Uranium DCGL$_W$:	5,000 dpm/100cm²
Uranium DCGL$_{EMC}$:	15,000 dpm/100cm²

Transuranic

Maximum:	51 dpm/100cm²
Minimum:	-4 dpm/100cm²
Mean:	12 dpm/100cm²
Standard Deviation:	15
Transuranic DCGL$_W$:	100 dpm/100cm²
Transuranic DCGL$_{EMC}$:	300 dpm/100cm²

Conclusion - A comparison of the random, biased and QC measurement results against the PDSP Table 7-1 Surface Contamination Guideline limits was conducted; the comparison demonstrates that this survey unit passes the criterion specified in the PDSP.

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Survey Area: AC	Survey Unit: 771104	Building: 771

Description: B771 North section Corridor A, East Section C, Rm 127, Rm 120A

Instrument Data Sheet

Inst/RCT Number	RCT ID	Analysis Date	Instr Model	Instru S/N	Probe Type	Calibration Due Dt	Instru Efficiency		A-Priori MDA (dpm/100cm²)		Survey Type
							Alpha	Beta	Alpha	Beta	
1	514979	07/02/04	Electra	1536	DP-6	12/22/04	0.218	NA	48.0	NA	T
2	702353	07/02/04	Electra	1375	DP-6	09/05/04	0.222	NA	48.0	NA	T
3	514979	07/02/04	SAC-4	1178	NA	09/01/04	0.333	NA	10.0	10.0	R
4	514979	07/02/04	SAC-4	1410	NA	10/13/04	0.333	NA	10.0	10.0	R
5	514979	07/02/04	SAC-4	1185	NA	08/09/04	0.333	NA	10.0	10.0	R
6	701841	07/02/04	Electra	1536	DP-6	08/10/04	0.218	NA	48.0	NA	T
7	701841	07/02/04	SAC-4	1178	NA	08/17/04	0.333	NA	10.0	10.0	R
8	701841	07/02/04	SAC-4	1491	NA	09/17/04	0.333	NA	10.0	10.0	R

Survey Types: T = Total Surface Activity, Q = TSA QC, S = Scan, R = Removable Surface Activity, I = Investigation

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Survey Area: AC	Survey Unit: 771104	Building: 771

Description: B771 North section Corridor A, East Section C, Rm 127, Rm 120A

Random Removable Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771104PRP-N001	3	0.0	N/A	
771104PRP-N002	4	-0.3	N/A	
771104PRP-N003	5	1.8	N/A	
771104PRP-N004	5	3.3	N/A	
771104PRP-N005	3	1.5	N/A	
771104PRP-N006	5	1.8	N/A	
771104PRP-N007	4	1.2	N/A	
771104PRP-N008	3	1.5	N/A	
771104PRP-N009	4	-0.3	N/A	
771104PRP-N010	3	0.0	N/A	
771104PRP-N011	4	1.2	N/A	
771104PRP-N012	8	-0.3	N/A	
771104PRP-N013	7	0.9	N/A	
771104PRP-N014	8	-0.3	N/A	
771104PRP-N015	7	-0.6	N/A	

Comments:

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Survey Area: AC	Survey Unit: 771104	Building: 771

Description: B771 North section Corridor A, East Section C, Rm 127, Rm 120A

Random/QC Total Surface Activity Data Sheet

Random Measurement Location	Inst / RCT Nbr	Net Alpha (dpm/100cm²)	Net Beta (dpm/100cm²)	
771104PRP-N001	1	3.8	N/A	
771104PRP-N002	1	-2.7	N/A	
771104PRP-N003	2	9.2	N/A	
771104QRP-N003	6	8.9	N/A	
771104PRP-N004	1	6.5	N/A	
771104PRP-N005	1	40.5	N/A	
771104PRP-N006	2	9.2	N/A	
771104PRP-N007	1	13.4	N/A	
771104PRP-N008	1	31.3	N/A	
771104PRP-N009	1	22.1	N/A	
771104PRP-N010	1	18.9	N/A	
771104QRP-N010	6	2.9	N/A	
771104PRP-N011	1	9.7	N/A	
771104PRP-N012	6	3.8	N/A	
771104PRP-N013	6	24.9	N/A	
771104PRP-N014	6	3.8	N/A	
771104PRP-N015	6	15.7	N/A	

Comments:

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Survey Area: AC	Survey Unit: 771104	Building: 771

Description: B771 North section Corridor A, East Section C, Rm 127, Rm 120A

Media Samples Data Sheet

Site Sample ID / Nbr --- Description	Nuclide	Sample (pCi/g)	Sample MDA (pCi/g)	Weight (g)	Surface Area (in^2)	Sample Nuclide ($dpm/100cm^2$)	Sample Nuclide MDA ($dpm/100cm^2$)	Sample Total ($dpm/100cm^2$)
04Z0584-001.001 101	U234	NA	NA	33.86	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.3800	0.1200			17	5	**Transuranic**
	Am241	0.0521	0.1830			2	8	19
04Z0584-002.001 102	U234	NA	NA	34.67	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.1050	0.1610			5	7	**Transuranic**
	Am241	0.0891	0.1710			4	8	9
04Z0584-003.001 103	U234	NA	NA	29.84	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.1330	0.1870			5	7	**Transuranic**
	Am241	0.0568	0.1990			2	8	7
04Z0584-004.001 104	U234	NA	NA	21.94	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.1460	0.2190			4	6	**Transuranic**
	Am241	0.0517	0.2460			2	7	6
04Z0584-005.001 105	U234	NA	NA	40.66	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	-0.0064	0.1420			0	8	**Transuranic**
	Am241	-0.0659	0.2680			-4	14	-4
04Z0584-006.001 106	U234	NA	NA	4.34	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.1420	0.1420			1	1	Transuranic
	Am241	0.1160	0.1840			1	1	2
04Z0584-007.001 107	U234	NA	NA	6.62	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	-0.0117	0.2970			0	3	**Transuranic**
	Am241	-0.0111	0.2430			0	2	0

Comments:

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Survey Area: AC	Survey Unit: 771104	Building: 771

Description: B771 North section Corridor A, East Section C, Rm 127, Rm 120A

Media Samples Data Sheet

Site Sample ID / Nbr --- Description	Nuclide	Sample (pCi/g)	Sample MDA (pCi/g)	Weight (g)	Surface Area (in^2)	Sample Nuclide ($dpm/100cm^2$)	Sample Nuclide MDA ($dpm/100cm^2$)	Sample Total ($dpm/100cm^2$)
04Z0584-008.001 108	U234	NA	NA	28.65	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0237	0.1640			1	6	**Transuranic**
	Am241	-0.0774	0.2370			-3	9	-2
04Z0584-009.001 109	U234	NA	NA	41.18	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.3140	0.1530			17	8	**Transuranic**
	Am241	0.3110	0.1410			17	8	34
04Z0584-010.001 110	U234	NA	NA	41.96	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.7210	0.1520			40	8	**Transuranic**
	Am241	0.1980	0.1650			11	9	51
04Z0584-011.001 111	U234	NA	NA	25.98	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.4680	0.1490			16	5	**Transuranic**
	Am241	0.2090	0.1590			7	5	23
04Z0584-012.001 112	U234	NA	NA	3.31	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0125	0.1500			0	1	**Transuranic**
	Am241	0.1200	0.2240			1	1	1
04Z0584-013.001 113	U234	NA	NA	38.34	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.5450	0.1320			27	7	Transuranic
	Am241	-0.0119	0.2600			-1	13	27
04Z0584-014.001 114	U234	NA	NA	37.93	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0810	0.1550			4	8	**Transuranic**
	Am241	0.0684	0.1710			3	9	7

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Survey Area: AC	Survey Unit: 771104	Building: 771

Description: B771 North section Corridor A, East Section C, Rm 127, Rm 120A

Media Samples Data Sheet

Site Sample ID / Nbr --- Description	Nuclide	Sample (pCi/g)	Sample MDA (pCi/g)	Weight (g)	Surface Area (in^2)	Sample Nuclide ($dpm/100cm^2$)	Sample Nuclide MDA ($dpm/100cm^2$)	Sample Total ($dpm/100cm^2$)
04Z0584-015.001 115	U234	NA	NA	33.76	26.3	NA	NA	
DEFAULT	U235	NA	NA			NA	NA	**Uranium**
	U238	NA	NA			NA	NA	NA
	Pu239/240	0.0985	0.0985			4	4	**Transuranic**
	Am241	0.0579	0.1490			3	7	7

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ATTACHMENT E

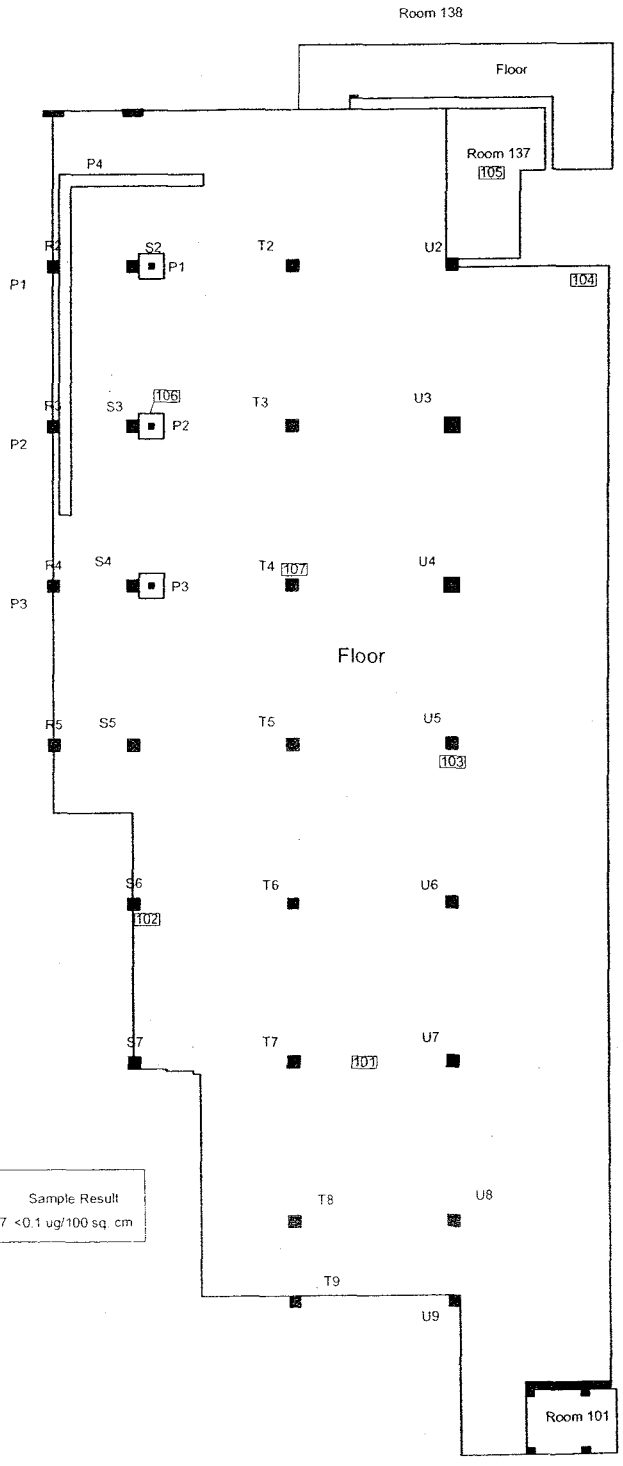
Chemical Data Summaries and Sample Maps

BERYLLIUM CHARACTERIZTION SURVEY FOR THE 771 CLUSTER

Survey Area: AC Survey Unit: 771034 Be Classification: NA
Building: 771
Survey Unit Description: First Floor (Women's and Men's locker rooms, Room 101, 137, 138, Corridor A & H

Total Floor Area: 9997 sq. ft. Total Area: NA Grid Size: NA

SURVEY UNIT 771034 Be - MAP 1 OF 1



Sample location	Sample Number	Sample Result
101 thru 107	771-11-24-2003-76-101 thru 107	<0.1 ug/100 sq. cm

0 FEET 30
0 METERS 10

N

SURVEY MAP LEGEND
Be Smears
Open Inaccessible Area
Area in Another Location

CL

ATTACHMENT F

Data Quality Assessment

DATA QUALITY ASSESSMENT (DQA)

VERIFICATION & VALIDATION OF RESULTS

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically beryllium).

DQA criteria and results are provided in a tabular format for each suite of surveys or chemical analyses performed; the radiological survey assessment is provided in Table E-1, and beryllium in E-2. A data completeness summary for all results is given in Table E-3.

All relevant Quality records supporting this report are maintained in the B771 Characterization Project Files. This report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of approval by the Regulators. All radiological data are organized into Survey Packages, which correlate to unique Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. All survey results were evaluated against, and were less than the Transuranic $DCGL_w$ (100 dpm/100cm^2).

SUMMARY

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs. All data are useable based on qualifications stated herein and are considered satisfactory without qualification.

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied site PDSP guidance. All facility contamination levels were below applicable unrestricted release levels, except as noted above. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable procedures, survey units were properly designed and bounded, and instrument performance and calibration were within acceptable limits.

Level 2 Isolation Controls have been implemented to prevent the inadvertent introduction of further contamination into the facility. On this basis, the B771 AC (Locker Room) meets the RLCP and PDSP DQO criteria with the confidences stated herein.

Table E-1 V&V of Radiological Surveys – B771 AC (Locker Room)

V&V CRITERIA, RADIOLGICAL SURVEYS		K-H RSP 16.00 Series MARSSIM (NUREG-1575)		
QUALITY REQUIREMENTS				
	Parameters	Measure	Frequency	COMMENTS
ACCURACY	initial calibrations	80%<x<120 %	≥1	Calibration using Alpha Group procedure and approved technicians.
	daily source checks	80%<x<120 %	≥1/day	Performed daily/within range.
	local area background: Field	typically < 10 dpm	≥1/day	All local area backgrounds were within expected Ranges <10 cpm
PRECISION	field duplicate measurements for TSA	≥5% of real survey points	≥100% packages	N/A
REPRESENTATIVENESS	MARSSIM methodology: Survey Unit 771034, 771104, and 771110	statistical	NA	Random w/ statistical confidence.
	Survey Maps	NA	NA	Random measurement locations controlled/mapped to ±1m.
	Controlling Documents (Characterization Pkg; RSPs)	qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	units of measure	dpm/100cm^2	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual surveys usable results vs. unusable	>95% >95%	NA	
SENSITIVITY	detection limits	TSA: ≤50 dpm/100cm^2 RA: ≤10 dpm/100cm^2	all measures	MDAs ≤ ½ $DCGL_w$ per MARSSIM guidelines.

Table E-2 V&V of Beryllium Results – B771 AC (Locker Room)

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		
BERYLLIUM	Prep: NMAM 7300 METHOD: OSHA ID-125G	LAB ---->	Johns Manville Corp. Denver, Co.	
QUALITY REQUIREMENTS		RIN ---->	RIN 771-11242003-76-101 thru 107	
		Measure	Frequency	COMMENTS
ACCURACY	Calibrations Initial	linear calibration	≥1	No qualifications significant enough to change project decisions, i.e., classification of Type 3 facilities confirmed. All results were below associated action levels.
	Continuing	80%<%R<120%	≥1	
	LCS/MS	80%<%R<120%	≥1	
	Blanks - lab & field	<MDL	≥1	
	interference check std (ICP)	NA	NA	
PRECISION	Laboratory Control Sample Duplicate	80%<%R<120% (RPD<20%)	≥1	
	field duplicate	all results < RL	≥1	
REPRESENTATIVENESS	COC	Qualitative	NA	
	hold times/preservation	Qualitative	NA	
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	
COMPARABILITY	measurement units	ug/100cm^2	NA	
COMPLETENESS	Plan vs. Actual samples usable results vs. unusable	>95% >95%	NA	
SENSITIVITY	detection limits	MDL of 0.10ug/100cm^2	all measures	

Table E-3 Data Completeness Summary – B771 AC (Locker Room)

ANALYTE	Building/Area /Unit	Sample Number Planned (Real & QC)[A]	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Beryllium	B771 AC (Locker Room)	7 biased (interior)	7 biased (interior)	No beryllium contamination found at any location, all results below the regulatory limit	OSHA ID-125G RIN 771-11242003-76-101 thru 107 No results above action level (0.2ug/100cm^2) or investigative level (0.1ug/100cm^2).
Radiological	Survey Area: AC Survey Unit: 771110 B771 AC (Locker Room) Walls and Ceiling	15 α TSA (15 – Random/Systematic) and 15 α Smears (15 - Random/Systematic) 2 QC TSA 15 Media 14 % scanned	15 α TSA (15 – Random/Systematic) and 15 α Smears (15 - Random/Systematic) 2 QC TSA 15 Media 14 % scanned	No elevated contamination at any location; all values below PDS unrestricted release levels No result above action level	Transuranic DCGLs No result above action level

Table E-3 Data Completeness Summary – B771 AC (Locker Room)

ANALYTE	Building/Area /Unit	Sample Number Planned (Real & QC)[A]	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Radiological	Survey Area: AC Survey Unit: 771034 B771 AC (Locker Room) Floors	123 α TSA (123 – Random/Systematic) and 123 α Smears (123 - Random/Systematic) 7 QC TSA 100% scanned	123 α TSA (123 – Random/Systematic) and 123 α Smears (123 - Random/Systematic) 7 QC TSA 100% scanned	No elevated contamination at any location; all values below PDS unrestricted release levels No result above action level	Transuranic DCGLs No result above action level
Radiological	Survey Area: AC Survey Unit: 771104 B771 AC (Locker Room) Northeast Corner	15 α TSA (15 – Random/Systematic) and 15 α Smears (15 - Random/Systematic) 2 QC TSA 15 Media Samples 100% scanned	15 α TSA (15 – Random/Systematic) and 15 α Smears (15 - Random/Systematic) 2 QC TSA 15 Media Samples 100% scanned	No elevated contamination at any location; all values below PDS unrestricted release levels No result above action level	Transuranic DCGLs No result above action level

ATTACHMENT G

Historical Review

Area AC (Former Locker Rooms)
Historical Review
July 2, 2004

Facility ID: Building 771 Former Locker Rooms (Survey Area AC)

Anticipated Facility Type (1, 2, or 3): Type 3 (Based on proximity to Building 771 only). Historically, this area was used as a Locker Room and the potential for contamination is very low.

Physical Description: The Building 771 AC Area is the former Locker Room area located in the northwest section of Building 771. This area includes Rooms 120-128, the northwest section of Corridor H, and the portion of Corridor A adjacent to the former locker rooms.

Historical Operations:
The Building 771 Locker Room area (AC) was part of the original building construction in 1951. The area was used for the men's and women's locker rooms, janitor's closet, and storage area.

Current Operational Status
The Building 771 Locker Room (Area AC) is no longer operational. All major equipment (lockers, benches, and plumbing fixtures) and load-bearing walls have been removed.

Contaminants of Concern

Asbestos
The Building 771 Locker Room area (AC) was constructed in 1951, therefore the presence of ACM was suspected. A Certified Building Inspector performed a complete inspection of the area and sampled the suspect materials. Asbestos-Containing Material (ACM) was identified in the following materials:

- steam piping and components (TSI) (removed)
- drywall joint compound (removed)

Beryllium (Be)
The Building 771 Locker Room area (AC) is not an RFETS Beryllium (Be) Area, based on historical and existing classifications, and historical use.

Lead
The remaining paint in the AC area (walls, columns, and ceilings) will not be removed from the substrate.

A visual inspection of Area AC by 771/774 Environmental Compliance personnel verified the absence of hazardous waste residuals and/or stains on the floor/concrete slab, walls, or ceiling.

Although the AC Area paint was not specifically sampled and evaluated for lead, the samples collected from other areas of Building 771 are considered representative of the expected lead levels in Area AC. Analysis of 61 paint samples from the process areas of the 771/774 complex indicates that lead levels are below regulatory limits in paint.

RCRA/CERCLA Constituents
A visual inspection of Area AC by 771/774 Environmental Compliance personnel verified the absence of hazardous waste residuals and/or stains on the floor/concrete slab, walls, or ceiling. As a result of these observances, it has been determined that no additional sampling for RCRA/CERCLA constituents is required.

PCBs
Free-flowing or exposed PCBs have never been used or transferred in Area AC. PCB ballasts in fluorescent light fixtures were present throughout the area, and have been removed and disposed of.

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Area AC (Former Locker Rooms)
Historical Review
July 2, 2004

Radiological Contaminants

The contaminants of concern for the 771 project, including all areas of Buildings 771 and 774, are transuranic alpha-emitting radioisotopes (including Pu-238, Pu-239/240, Pu-242, and Am-241). Based on findings documented in Radiological Engineering TBD-00161, Rev. 0, alpha-only surveys assure that the unrestricted-release limits for any other isotopes that may exist in Building 771/774 will not be exceeded.

Area AC was considered a "cold" area, meaning that the area was not posted or controlled as a radiological area. However, contamination in excess of the unrestricted release limits was detected at several locations on the floor during characterization efforts. It is suspected that D&D activities impacted the area (hydrolazing water run-off) and introduced contamination that did not exist during building operations. In addition, contamination in excess of the unrestricted release limits was detected in the former Corridor A area (northeast corner of Area AC – survey unit 771104). It is suspected that contamination may have been tracked to the area during building operations, based on high personnel traffic and the proximity of the area to the process area.

Environmental Restoration Concerns

UBC sampling performed inside the B771 footprint has been performed. Based on the preliminary results, no remedial action is anticipated.

Additional Information

None

References

(1) *B771 and B774 Hazards Characterization Report for the 771 Closure Project*, dated June 12, 2001, Revision 0.

(2) *Building 771/774 Cluster Closure Project Reconnaissance Level Characterization Report*, dated August 8, 1998, Revision 2.

Further Actions

Complete the PDS process.

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